



US 20120062483A1

(19) **United States**(12) **Patent Application Publication**
Ciesla et al.(10) **Pub. No.: US 2012/0062483 A1**(43) **Pub. Date: Mar. 15, 2012**(54) **USER INTERFACE SYSTEM**(52) **U.S. Cl. 345/173**(76) Inventors: **Craig Michael Ciesla**, Mountain View, CA (US); **Micah B. Yairi**, Daly City, CA (US); **Nathaniel Mark Saal**, Palo Alto, CA (US)(21) Appl. No.: **13/046,467**(22) Filed: **Mar. 11, 2011****Related U.S. Application Data**

(60) Provisional application No. 61/313,054, filed on Mar. 11, 2010, provisional application No. 61/313,064, filed on Mar. 11, 2010.

Publication Classification(51) **Int. Cl.**
G06F 3/041 (2006.01)(57) **ABSTRACT**

A user interface system for a device that includes a first deformable layer that with a first sheet that defines a first surface, a first fluid vessel arranged underneath the first surface, and a first volume of fluid contained within the first fluid vessel that is manipulated to deform a first particular region of the first surface to receive a user input; a second deformable layer with a second sheet that defines a second surface, a second fluid vessel arranged underneath the second surface, and a second volume of fluid contained within the second fluid vessel that is manipulated to deform a second particular region of the second surface to change the shape of the device; and a displacement device a displacement device coupled to at least one of the first and second fluid vessels and configured to manipulate the volumes of fluid to deform particular regions of the surface.

